# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/523,590 | 02/04/2005 | Toshihisa Kato | 033294-047 | 5806 |

21839          7590          10/20/2008
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

| EXAMINER |
|---|
| SHIN, SARAH S |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3661 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 10/20/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 10/523,590 | KATO ET AL. |
| | Examiner | Art Unit | |
| | SARAH S. SHIN | 3661 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) ☒ Responsive to communication(s) filed on <u>23 June 2008</u>.
2a) ☒ This action is **FINAL**.  2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4) ☒ Claim(s) <u>3-7 and 9-12</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>3-7 and 9-12</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>04 February 2002</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All  b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>24 March 2008, 23 June 2008</u>.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

## DETAILED ACTION

### *Priority*

1.      Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on August 6, 2002. It is noted, however, that applicant has not filed a certified copy of the foreign application as required by 35 U.S.C. 119(b).

### *Information Disclosure Statement*

2.      The information disclosure statements (IDS) submitted on March 24, 2008 and June 23, 2008 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

3.      Claim 8 was canceled.

### *Claim Rejections - 35 USC § 103*

4.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.      Claims 3-7, 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herada et al. (US 6,081,761) and further in view of Mine et al. (US 6,208,927).

With respect to **claim 3**, Herada discloses the claimed motion control apparatus for a vehicle comprising:

vehicle-body speed obtaining means (Column 2, lines 52-53, Column 8, lines 54-56);

steering-member operating amount obtaining means (Column 8, line 22);

actual lateral acceleration related quantity obtaining means (Column 2, lines 52-53,

Column 8, lines 17);

target lateral acceleration related quantity calculating means (Column 1, lines 19-21);

braking force control means (Column 3, lines 33-36 and Column 4, lines 51-56);

wherein the reference lateral acceleration related quantity is a theoretical value of the

lateral acceleration related quantity acting on the vehicle when the vehicle is turning in a

state in which the steering-member operating amount and the vehicle-body speed are

both constant (Column 13, lines 5-20 where the reference lateral acceleration related

quantity is a theoretical value using the steering-member operating amount and speed

at the time of the calculation as constants).

Herada fails to disclose when the vehicle-body speed is at least a prescribed

value, the absolute value of the target lateral acceleration related quantity is equal to or

less than the absolute value of a reference lateral acceleration related quantity which is

a reference value of the lateral acceleration related quantity determined by a prescribed

rule based on at least the vehicle- body speed and the steering-member operating

amount and when the vehicle-body speed is less than the prescribed value, the

absolute value of the target lateral acceleration related quantity is greater than or equal

to the absolute value of the reference lateral acceleration related quantity.

However, Mine discloses when the vehicle-body speed is at least a prescribed

value, the absolute value of the target lateral acceleration related quantity is equal to or

less than the absolute value of a reference lateral acceleration related quantity (Column 15, lines 3-6) which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle- body speed and the steering-member operating amount (Column 14, lines 29-41 where the target lateral acceleration is the allowable lateral acceleration and the friction coefficient is based on the steering angle as described in Column 6, lines 19-23). It would have been obvious to one skilled in the art at the time the invention was made to include the calculations of the target and reference lateral accelerations as taught by Mine and use a prescribed rule based on the vehicle-body speed and the steering member operating amount in order to enhance the safety while driving and optimize the vehicle maneuvering control (Column 15, lines 3-4 and Column 25, lines 31-36).

Mine does not explicitly state that when the vehicle-body speed is less than the prescribed value, the absolute value of the target lateral acceleration related quantity is greater than or equal to the absolute value of the reference lateral acceleration related quantity. However it is implicit that the allowable lateral acceleration will increase at lower vehicle speeds (Column 15, lines 3-6). Mine does not address that the value of the target and reference lateral acceleration are absolute values, but it would have been obvious to one skilled in the art at the time the invention was made to use absolute values in order to simplify the calculations of the lateral acceleration by allowing the comparisons/calculations to be performed without regards to the sign of the value, where the direction of the acceleration is immaterial to the calculation of the target lateral acceleration.

With respect to **claim 4**, Herada fails to disclose the target lateral acceleration related quantity calculating means changes the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity in accordance with the steering-member operating amount. However, Mine discloses a target lateral acceleration related quantity calculating means changes the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity in accordance with the steering-member operating amount (Column 14, lines 29-41 where the target lateral acceleration is the allowable lateral acceleration and the friction coefficient is based on the steering angle as described in Column 6, lines 19-23). It would have been obvious to one skilled in the art at the time the invention was made to include the quantity deviates from the reference lateral acceleration in accordance with the steering-member operating amount in order to enhance the driving safety and optimize vehicle maneuvering control (Column 15, lines 3-4 and Column 25, lines 31-36).

With respect to **claim 5**, Herada fails to disclose the prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle. However Mine discloses a prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle (Column 14, lines 29-32 where the friction coefficient estimation takes the cornering power of the tire into consideration as described in

Column 6, lines 36-41 and Column 7, lines 19, 33-44 and n in formula (8) represents the

steering gear ratio). It would have been obvious to one skilled in the art at the time the

invention was made to include use the actual specification value in order to obtain more

accurate estimation of the friction coefficient (Column 7, lines 51-53); and Herada

discloses the target lateral acceleration related quantity calculating means calculates,

as the target lateral acceleration related quantity, the reference lateral acceleration

related quantity determined in accordance with the prescribed rule and on the basis of a

control specification value instead of the actual specification value, the control

specification value being deviated from the actual specification value in accordance with

the vehicle-body speed or the vehicle- body speed and the steering-member operating

amount (Column 1, lines 17-21).


With respect to **claim 6**, Herada discloses a motion control apparatus for a

vehicle comprising:

vehicle-body speed obtaining means for obtaining a vehicle-body speed of the vehicle

(Column 2, lines 52-53, Column 8, lines 54-56);

steering-member operating amount obtaining means for obtaining an operating amount

of a steering member of the vehicle which changes a steering angle of steerable wheels

of the vehicle (Column 8, line 22);

actual lateral acceleration related quantity obtaining means for obtaining, as an actual

lateral acceleration related quantity, an actual value of a lateral acceleration related

quantity indicating the extent of turning of the vehicle (Column 2, lines 52-53, Column 8,

lines 17);

target lateral acceleration related quantity calculating means for calculating a target

lateral acceleration related quantity which is a target value of the lateral acceleration

related quantity (Column 1, lines 19-21),

braking force control means for controlling a braking force applied to each of front and

rear wheels of the vehicle so that the actual lateral acceleration related quantity

approaches the target lateral acceleration related quantity (Column 3, lines 33-36 and

Column 4, lines 51-56); and

the target lateral acceleration related quantity calculating means is constructed to

calculate the target lateral acceleration related quantity in such a manner that the

absolute value of the target lateral acceleration related quantity does not exceed a

target lateral acceleration related quantity limiting value, which is set in accordance with

an actual specification value of the vehicle which influences the generated roll angle of

the vehicle (Column 10, lines 8-29).

Herada fails to disclose the absolute value of the target lateral acceleration

related quantity is equal to or less than the absolute value of a reference lateral

acceleration related quantity which is a reference value of the lateral acceleration

related quantity determined by a prescribed rule based on at least the vehicle-body

speed and the steering-member operating amount. However, Mine discloses the

absolute value of the target lateral acceleration related quantity is equal to or less than

the absolute value of a reference lateral acceleration related quantity (Column 15, lines

3-6)  which is a reference value of the lateral acceleration related quantity determined

by a prescribed rule based on at least the vehicle-body speed and the steering-member

operating amount (Column 14, lines 29-41 where the target is the allowable lateral

acceleration and the friction coefficient is based on the steering angle as described in

Column 6, lines 19-23). It would have been obvious to one skilled in the art at the time

the invention was made to include the calculations of the target and reference lateral

accelerations as taught by Mine and use a prescribed rule based on the vehicle-body

speed and the steering member operating amount in order to enhance the safety while

driving and optimize the vehicle maneuvering control (Column 15, lines 3-4 and Column

25, lines 31-36).

With respect to **claim 7**, Herada fails to disclose the target lateral acceleration

related quantity calculating means is constructed such that the amount by which the

target lateral acceleration related quantity deviates from the reference lateral

acceleration related quantity changes in accordance with the absolute value of the

reference lateral acceleration related quantity. However, Mine discloses a target lateral

acceleration related quantity calculating means is constructed such that the amount by

which the target lateral acceleration related quantity deviates from the reference lateral

acceleration related quantity changes in accordance with the absolute value of the

reference lateral acceleration related quantity. (Column 14, lines 26-41). It would have

been obvious to one skilled in the art at the time the invention was made to deviate the

target lateral acceleration as taught by Mine in order to optimize vehicle maneuvering

control (Column 25, lines 31-39). Mine does not address that the value of the target and

reference lateral acceleration are absolute values, but it would have been obvious to

one skilled in the art at the time the invention was made to use absolute values in order

to simplify the calculations of the lateral acceleration by allowing the

comparisons/calculations to be performed without regards to the sign of the value,

where the direction of the acceleration is immaterial to the calculation of the target

lateral acceleration.


With respect to **claim 9**, Herada discloses road-surface friction coefficient

obtaining means for obtaining a road-surface friction coefficient, which is the coefficient

of friction between a road surface on which the vehicle travels and tires of the wheels of

the vehicle (Column 4, line 67 and Column 5, lines1-2); and

target lateral acceleration related quantity limiting means for setting a target lateral

acceleration related quantity limiting value in accordance with the road-surface friction

coefficient and for limiting the target lateral acceleration related quantity (Column 13,

lines 13-23) , when the absolute value of the target lateral acceleration related quantity

is greater than the target lateral acceleration related quantity limiting value, in such a

manner that the absolute value of the target lateral acceleration related quantity

coincides with the target lateral acceleration related quantity limiting value (Column 13,

lines 24-29). Herada does not address that the value of the target and reference lateral

acceleration are absolute values, but it would have been obvious to one skilled in the art

at the time the invention was made to in order to simplify the calculations of the lateral

acceleration by allowing the comparisons/calculations to be performed without regards

to the sign of the value, where the direction of the acceleration is immaterial to the

calculation of the target lateral acceleration.


With respect to **claim 10**, Herada does not disclose the prescribed rule

determines the reference lateral acceleration related quantity based on an actual

specification value of the vehicle which influences the turning properties of the vehicle.

However, Mine discloses the prescribed rule determines the reference lateral

acceleration related quantity based on an actual specification value of the vehicle which

influences the turning properties of the vehicle (Column 14, lines 29-32 where the

friction coefficient estimation takes the cornering power of the tire into consideration as

described in Column 6, lines 36-41 and Column 7, lines 19, 33-44 and n in formula (8)

represents the steering gear ratio). It would have been obvious to one skilled in the art

at the time the invention was made to use an actual specification value in order to

obtain more accurate estimation of the friction coefficient and hence the lateral

acceleration values (Column 7, lines 51-53).

Herada discloses the target lateral acceleration related quantity calculating

means calculates, as the target lateral acceleration related quantity, the reference

lateral acceleration related quantity determined in accordance with the prescribed rule

and on the basis of a control specification value instead of the actual specification value,

the control specification value being deviated from the actual specification value in

accordance with the vehicle-body speed or the vehicle- body speed and the steering-

member operating amount (Column 1, lines 17-21).

With respect to **claim 11**, Herada discloses the target lateral acceleration related

quantity calculating means is constructed to calculate the target lateral acceleration

related quantity in such a manner that the absolute value of the target lateral

acceleration related quantity does not exceed a target lateral acceleration related

quantity limiting value, which is set in accordance with an actual specification value of

the vehicle which influences the generated roll angle of the vehicle (Column 10, lines 8-

29).


With respect to **claim 12**, Herada discloses a road-surface friction coefficient

obtaining means for obtaining a road-surface friction coefficient, which is the coefficient

of friction between a road surface on which the vehicle travels and tires of the wheels of

the vehicle (Column 4, line 67 and Column 5, lines1-2); and target lateral acceleration

related quantity limiting means for setting a target lateral acceleration related quantity

limiting value in accordance with the road-surface friction coefficient and for limiting the

target lateral acceleration related quantity (Column 13, lines 13-23),

when the absolute value of the target lateral acceleration related quantity is greater than

the target lateral acceleration related quantity limiting value, in such a manner that the

absolute value of the target lateral acceleration related quantity coincides with the target

lateral acceleration related quantity limiting value (Column 13, lines 24-29).

### *Response to Arguments*

6.      Applicant's arguments filed June 23, 2008, have been fully considered but they are not persuasive.

7.      On page 17 of the Remarks, the Applicant argues Herada and Mine do not disclose the claimed reference lateral acceleration related quantity. The Examiner respectfully disagrees. The reference of Herada discloses the claimed reference lateral acceleration related quantity using the steering-member operating amount and the speed as constants. The reference of Mine is combined with that of Herada to illustrate that as the speed of the vehicle increases, the target lateral acceleration related quantity will decrease (Mine Column 15, lines 1-6) and thus, it would have been obvious to one skilled in the art at the time the invention was made that the target lateral acceleration related quantity will be less than or equal to the reference quantity and vice versa in the case where the speed of the vehicle is lower. See rejection of claim 3, above.

8.      On page 18 of the Remarks, the Applicant argues Mine does not disclose the claimed target lateral acceleration related quantity calculation. The Examiner respectfully disagrees. The Mine implicitly discloses the allowable lateral acceleration related quantity increases as the speed decreases (See rejection of claim 3, above). It would have been obvious to one skilled in the art at the time the invention was made that the target lateral acceleration related quantity will be greater than or equal to the reference lateral acceleration related quantity since Mine discloses the target quantity will be higher at lower speeds.

9.       On page 20 of the Remarks, the Applicant argues Mine does not disclose the

claimed target lateral acceleration related quantity calculating means corresponding to

the previously claimed claim 8. The Examiner respectfully agrees; however, Herada is

used to reject the previous claim 8 portion of the newly amended claim 6 (See rejection

of claim 6, above).


*Conclusion*

**THIS ACTION IS MADE FINAL.**  Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action.  In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action.  In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to SARAH S. SHIN whose telephone number is (571)270-

1812.  The examiner can normally be reached on Mon-Fri, 8:00AM-5:30PM Alt. Fri,

Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 13, 2008
/Sarah S Shin/
Examiner, Art Unit 3661

/Thomas G. Black/
Supervisory Patent Examiner, Art Unit 3661